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# THUNDER BAY

## FUTURE TRANSPORTATION PLANS

## HIGHWAYS



Ministry of  
Transportation and  
Communications

Ontario



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Revised  
February



# THUNDER BAY

## FUTURE TRANSPORTATION PLANS



Ministry of  
Transportation and  
Communications

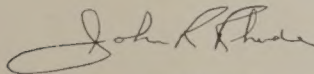
## HIGHWAYS

Transportation facilities have always been of vital importance in the development of Northern Ontario.

This report, one of a series, presents the findings and recommendations of a transportation study of provincial roads and highways within the District of Thunder Bay.

The study has examined the social, economic and environmental structures of the region as they relate to transportation both today and in the future. The plan however, is not static, since planning must be a continuous process and must be responsive to unexpected changes in population growth, land use and economic expansion. I therefore encourage the general public, organized municipalities, special interest groups and private enterprise, to do their utmost to keep us informed of their goals and aspirations for the region.

Sincerely,

A handwritten signature in dark ink, appearing to read "John R. Rhodes". The signature is fluid and cursive, with a large loop at the beginning and a trailing flourish at the end.

John R. Rhodes  
Minister  
Ministry of Transportation  
and Communications

## ACKNOWLEDGEMENTS

Particular thanks are expressed to the many agencies that participated in this study:

## Ministry of Agriculture and Food

- Production and Rural Development Division

## Ministry of the Environment

- Strategic Planning Branch

## Ministry of Industry and Tourism

- Tourism Research Branch

## Ministry of Natural Resources

- Land Use Co-ordination Branch
- Division of Fish and Wildlife
- Division of Forests
- Division of Mines
- Division of Parks
- North Central Region

## Ministry of Treasury, Economics and Intergovernmental Affairs

- Urban and Regional Planning Division

## Ontario Hydro Electric Commission

## Ontario Northland Transportation Commission

The assistance and cooperation of the Forest Products Industry, numerous local officials and the staff of this Ministry from the Regional, Economics and Environmental Offices are also acknowledged.

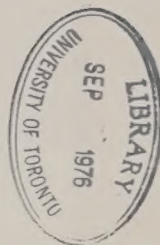
## Regional Transportation

Planning Office  
Planning Division  
M.T.C.

JUNE, 1975

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## INTRODUCTION

The Thunder Bay Regional Transportation Study covers an area of almost 50,000 square miles to the north of Lake Superior.

Among the outstanding features of the region, are its size, scenic beauty, low population density and resource potential.

The expanse of the area, combined with a low population base, long distances between urban centres and the rocky terrain are the main reasons for unusually high costs in transportation services. These costs in turn are a significant deterrent to the region's development.

The Government of Ontario recognizes that economic growth and social development does not occur evenly throughout the Province. In its efforts toward enabling Northwestern Ontario to share more fully in the expanding economy of the Province, a program of regional development has been prepared by the Ministry of Treasury, Economics and Intergovernmental Affairs.

The development program emphasizes three general regional goals which are, in essence:

- 1) To improve the quality of life in the northwest.
- 2) To provide "a level of goods and services equal to or greater than the level enjoyed by people in other areas of the Province".
- 3) To provide better economic and occupational opportunities.



Specific objectives related to transportation were subsequently derived from these goals and are described in detail later on.

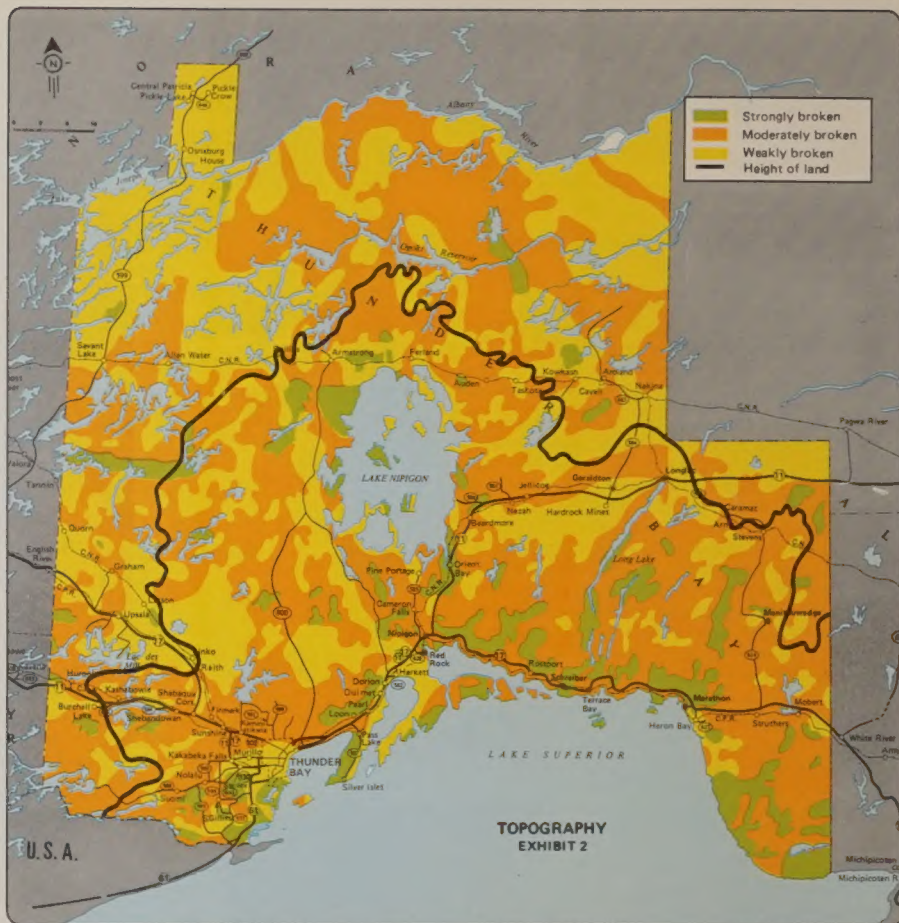
Based on these Goals and Objectives, the Ministry of Transportation and Communications, with the assistance of an interministerial planning committee, examined the present and future transportation requirements of the region related specifically to highways. This report outlines the findings of the study; it outlines the present provincial highway system in Northwestern Ontario and proposes policies for its future operation, improvement and expansion.

## THE REGION

The Thunder Bay Region extends almost 200 miles north from Lake Superior by some 260 miles in an east-west direction between White River and English River.

The Region lies within the Canadian Shield, a large area underlain by ancient volcanic, sedimentary and metamorphic rocks formed in Precambrian time. The landscape, which was modified by glaciation during the recent ice age, has a rugged beauty, particularly in the southern sector adjacent to Lake Superior. Cliffs and outcrops of bare rock alternate with well-forested areas, and the terrain is characterized by numerous lakes and streams.

The ancient Precambrian rocks, particularly easterly-trending zones of volcanic and sedimentary rocks popularly termed greenstone belts, constitute a vast mineral resource for precious metals, base metals, and iron. Some of the younger Precambrian rocks have potential for iron, copper and nickel.



Extensive stands of predominantly coniferous trees cover the land, supplying raw material for lumber, plywood, particleboard, pulp and paper.

The scenic beauty, clean air and water make the region attractive for recreation and tourism.

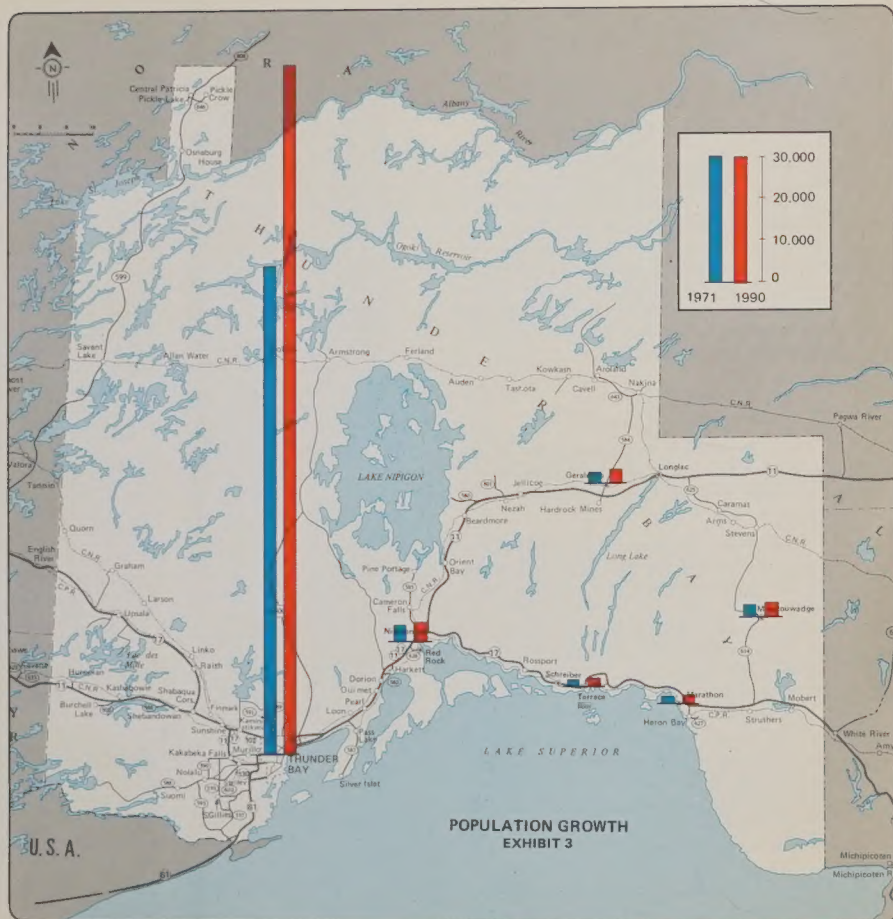
The topography of the area is illustrated in Exhibit 2.

Settlement in the region goes back to the beginning of the eighteenth century, when Fort William was established at the Lakehead. However, development started in earnest after the completion of the railway from Thunder Bay to Winnipeg. With the first shipment of grain from the prairies, a new era of development began.

Present land use patterns are closely related to the rail and main highway corridors which run through the region in an east-west direction. Forest based industries developed within these corridors at locations where water transportation could also be utilized. A number of mining communities exist in proximity to mineral discoveries. Some such as Manitowadge have required the construction of new road access. Tourism and recreational opportunities are widespread. Developments, however, tend to be concentrated along the main highway corridors where tourist traffic is greatest.

### Regional Growth

The region is one of the most sparsely populated areas in the Province, with a growth rate significantly below the provincial average. Pulp and paper, mining and tourism are the industries dominating the region's economy. Transportation,





communications and storage industries (Warehousing) are also large employers in this district. The railway systems and Thunder Bay's grain elevators account for most of this employment.

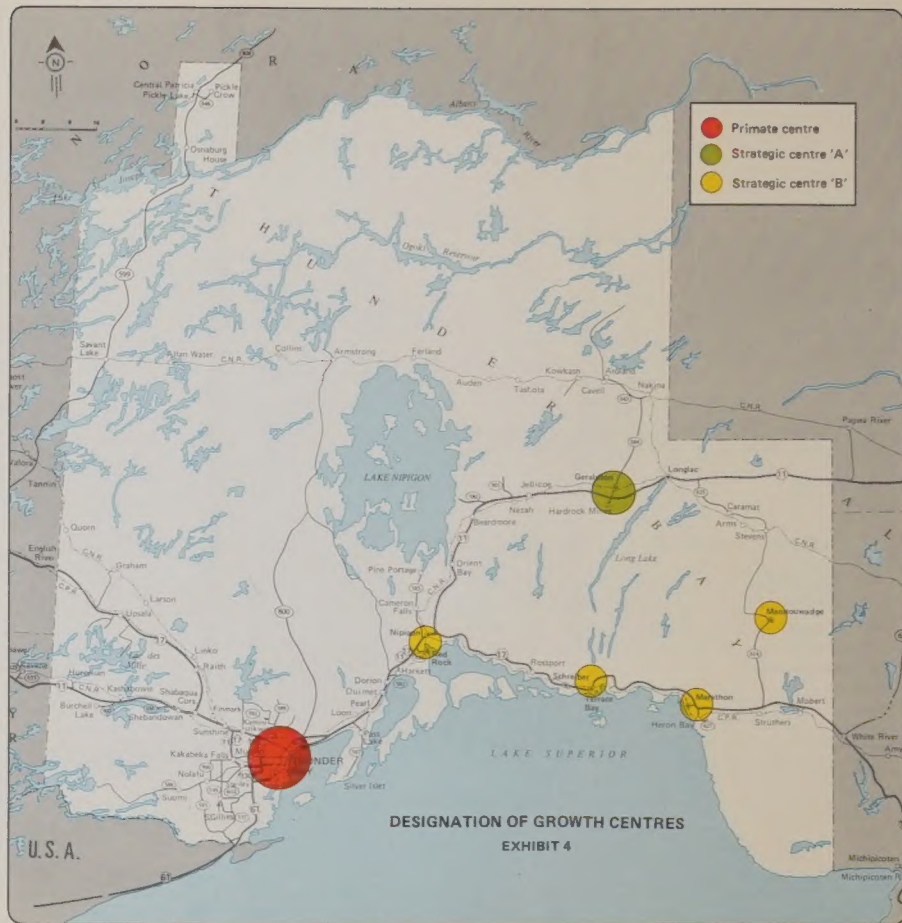
Development is expected to continue at a moderate growth rate for the City of Thunder Bay, with the smaller communities remaining fairly stable as indicated in Exhibit 3.

The population for 1971 and estimates for the future are:

	1971	1990
Thunder Bay City	109,300	164,250
Remainder of study area	36,100	37,250
Regional total	145,400	201,500

Exhibit 4 shows the hierarchy of urban centres as identified by the Regional development Branch of the Ministry of Treasury, Economics and Intergovernmental Affairs for Northwestern Ontario. The Primate Centre for the region is Thunder Bay which provides the widest ranges of social and economic opportunities on a regional scale.

Geraldton, Nipigon-Red Rock, Terrace Bay, Marathon and Manitowadge are smaller strategic centres of opportunity and represent growth points with spheres of influence less than that of the primate centre. Of these Geraldton is classified as a strategic "A" centre due to its larger population and potential for a more diversified economic base. The remainder are classified as strategic "B" centres: their population and area of influence are smaller and the potential for growth is generally confined to the resource sector, with some potential for specialized functions such as transportation and government services.



### Goals and Objectives

Within the framework of the regional goals stated in the Introduction, a number of specific transportation related objectives were defined as follows:

- (1) Increase accessibility between population centres.
- (2) Increase access to natural resources.
- (3) Increase accessibility between centres of population and airports.
- (4) Reduce time/cost of moving goods and people within and through the region as well as between the region and external markets.
- (5) Provide comprehensive transportation planning.

### REGIONAL ECONOMICS

Forestry, mining and tourism are the three major sectors of industry active in the region. Transportation and storage industries are also recognized as being important elements in the economic base.

Development in the region has primarily been the result of external demands on its natural resources. This export oriented characteristic of the regional economy, particularly for forest products and minerals, entails a high degree of sensitivity to the price fluctuations of the North American and

world markets. Economic conditions abroad also affect the tourism sector, since the tourist industry depends, for almost one third of its revenue, on U.S. visitors.



Paper Mill

### Forestry

Wood is the raw material for the region's largest industry. Much of it is used for pulp and paper products, and amounts to about 30% of the output of the province. Saw mills and plywood and particle board mills are also significant in providing direct employment or employment through supporting industries.

The location of the pulp and paper and particleboard mills as well as the major saw mills are shown in Exhibit 5.

In general all of the important forest product industries are located adjacent to the main rail and highway transportation corridors, with a significant concentration in and around the City of Thunder Bay.

Wood harvesting often necessitates the construction of extensive access road networks. Such roads quite often encourage new mining explorations and recreational activities. Road construction and maintenance costs represent a major concern of the forest products industry. In this regard, wood harvest plans of the active companies were examined for the period to 1990 and all potential new highway links were assessed to determine their impact on the operations of this industry.

## Mining

Mining in the Thunder Bay Region has a long history. Ontario's first silver mine, the Silver Islet Mine near the south end of the Sibley Peninsula, dates back to 1866.

After 1935, intensive prospecting for gold led to the development of mines at Pickle Lake, Geraldton, Jellicoe and Beardmore. These are currently inactive but the recent rise in the price of gold may revive mining interests. Since World War II, extractions of iron and base metals at Manitouwadge and Shebandowan have become major operations. Coming into production are ore bodies at Savant Lake and Sturgeon Lake and there may be other developments at Pickle Lake, Pardee Township, Lake St. Joseph, Geraldton and near Nakina. Exhibit 6 shows areas of high mineral potential. In addition to these resources there is considerable potential for building and structural materials such as sand and gravel.

As noted on Page 5, it is the greenstone belts of the Precambrian shield which have most of the known mineral deposits and which are the areas of the maximum potential for further discoveries.

The Ministry of Natural Resources provided an assessment of the mineral potential for the entire region. A theoretical exploration, discovery and production model was then used to predict the possible benefits which might accrue for each of the possible transportation links examined in this study, since, transportation is a major, if not the dominant



economic factor for all these commodities. In this way, the alternative systems were rated to achieve the greatest benefits to the province as well as the region.

#### Tourism and Recreation

Tourism and recreation is another important sector of the regional economy. The Canadian Shield with its extensive wilderness, has an aesthetic appeal of varied visual beauty. The Shield with its many lakes also provides an attractive environment for recreational driving and water-based recreational activities.

The most developed areas in the region are the north shore of Lake Superior and the major lakes where power boating and cruising are popular. In the less accessible areas the smaller lakes and streams provide a variety of canoe-tripping opportunities. Plentiful game and fish draw numerous people to the region for both hunting and fishing. More remote areas hold a special attraction for the sportsman. Here the fly-in lodges are active and the success of hunting and fishing expeditions confirms the region's reputation as a superb vacation area.

Paradoxically, the distance from major population centres has been the main reason that the region has preserved most of its unspoiled wilderness character. At the same time this remoteness is thought by some people to have hindered full development of the region's tourist potential.

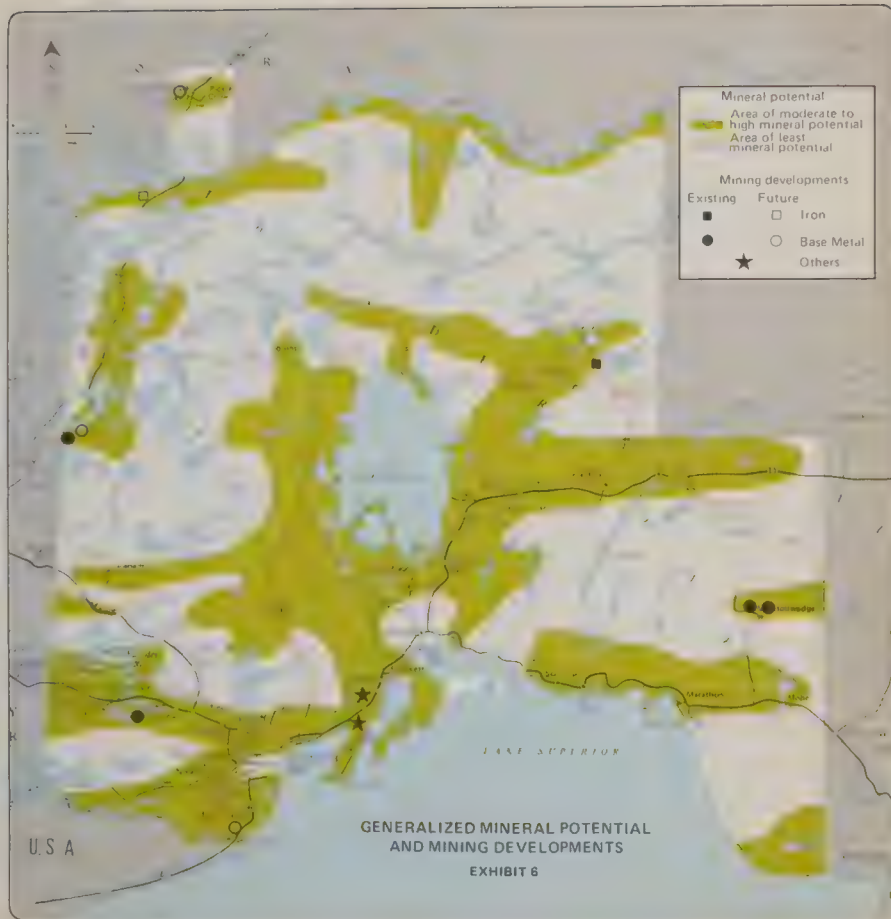




Exhibit 7 shows the major recreational facilities, the Provincial Parks and other cultural features.

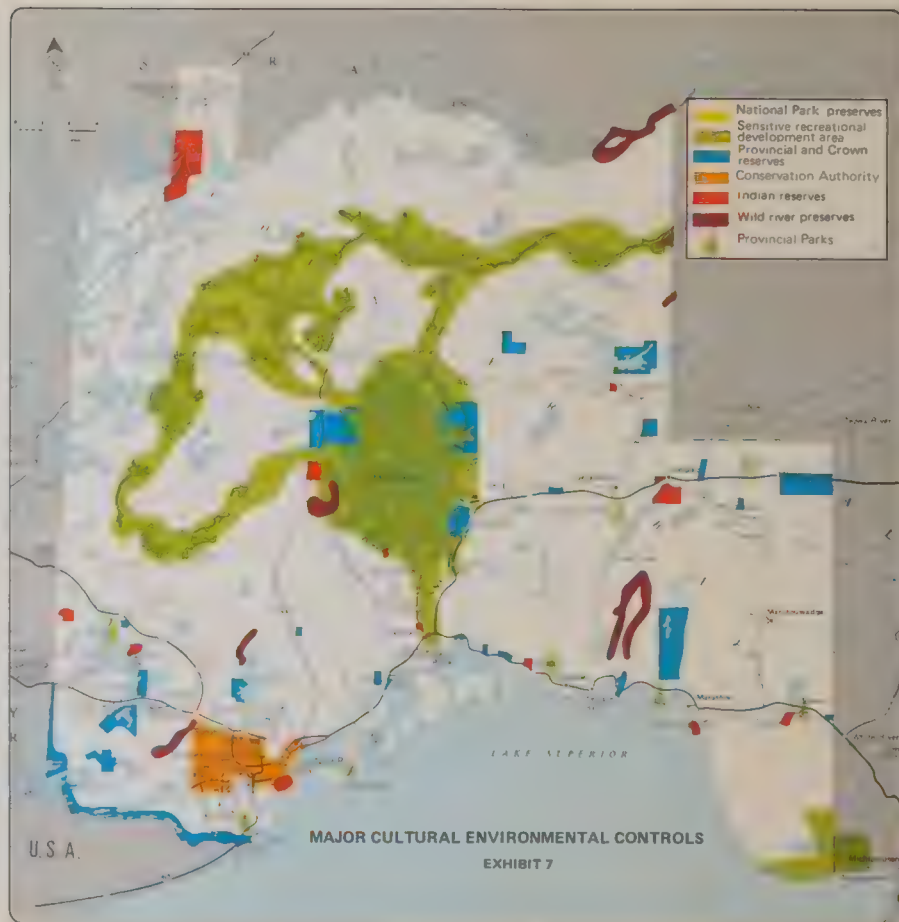
Although the summer months are popular with visitors to Northwestern Ontario, there are also good opportunities for winter recreation especially skiing around Thunder Bay as well as spring fishing and fall hunting.

The availability of a reasonably versatile transportation system to serve the tourist industry is essential. In general, the present highway system provides good access to a variety of recreational facilities in the more populated areas of the region, while charter air services continue to make the more remote wilderness increasingly accessible.

#### Transportation

The region's highways represent vital links in the provincial as well as the national transportation system, in that most east - west surface transportation passes through the region.

Road and rail transportation together with movement of goods and persons by water and by air are recognized as important elements in the region's economy. Related activities such as storage and trans-shipment of goods, particularly bulk commodities are also highly significant in the region's economy.





## EXISTING HIGHWAY SYSTEM

The existing highway transportation system is shown in Exhibit 9. For planning and administrative purposes the provincial highways in Ontario are classified in three major groups:

- Arterial** A highway primarily for long range trips on a continuous route.
- Collector** A highway distributing traffic from arterial highways to local roads.
- Local** A highway mainly serving short distance trips and providing access to abutting property.

Highways 11 and 17, the two major arterial routes, traverse the study area in an east - west direction. As alternate routes in the Trans Canada Highway System, they are signed Northern Route and Lake Superior Route respectively. However, for more than 100 miles, between Nipigon and Shabaqua Corners these highways overlap and become a single two-lane highway. As a result, all east - west road traffic is funnelled through this one corridor, creating the most heavily travelled part of the arterial system.

There are two existing collector highways in the region. Highway 61, a north - south route, provides a direct connection from the study area to the Pigeon River Bridge, a border crossing point into the United States. The other collector is Highway 102 which serves east - west traffic through the northern portion of the City of Thunder Bay.



The remaining highways are classified as local highways serving local functions. While these are not deemed to be of major significance to the provincial highway system their importance in the total road network of the region are fully recognized. Ideally, however, local highways should lie under the jurisdiction of a local administrative body. In Southern Ontario the important local roads are administered by county and regional authorities. Until such time as local authorities become established in the Thunder Bay region, local highways will remain the responsibility of the Ministry of Transportation and Communications.

#### FUTURE TRAVEL DEMANDS

Future travel desires were determined through the correlation of travel patterns and demographic data for the region.

The Ministry of Treasury, Economics and Intergovernmental Affairs, Regional Development Branch provided existing land use activities as measured by population, employment and recreational facilities as well as an estimate of these demographic data for the future.

Existing travel patterns were established from travel surveys in which drivers were asked the origin and destination of their trip, the type of establishment at each trip end, the home base of the vehicle and the purpose of the trip. More than 46,000 drivers were interviewed at sixty road-side survey stations and an additional 2,500 trips were documented through telephone interviews.





On the basis of this information existing summer weekday traffic demands of both resident and non-resident travellers was arrived at through the use of appropriate modelling techniques. Similar techniques were used to arrive at future travel demands, based on estimated land use, population and economic activity for the region.

Exhibit 10 shows the future travel demands grouped together into major travel bands with the width of the bands representing the estimated 1990 summer average weekday traffic volumes. The width and location of the bands are indicative of the travel corridors requiring investigation for possible improvements to the existing highway system.

From the illustration it can be seen that most of the predicted future travel desires are adequately satisfied by the existing highway network. However, one major new corridor is indicated between Nipigon and Raith. In addition a number of narrower volume bands connecting Highway 11 and 17 west of Nipigon are also evident.

A total of six separate corridors were investigated as shown in Exhibit 11. These corridors are:

- 1 Nipigon to Raith
- 2 Highway 800 to Savant Lake
- 3 Manitouwadge to Caramat
- 4 Stevens to Klotz Lake
- 5 Terrace Bay to Geraldton
- 6 Terrace Bay to Longlac



These corridor travel demands were investigated along with resource access information. The major factors considered in the evaluation of each of these corridors were

1. Engineering feasibility
2. Estimated traffic volumes
3. Time and distance savings
4. Forest access benefits
5. Impact on mining industry
6. Tourism
7. Regional development
8. Environmental impact considerations

The evaluation indicated that a new highway from Nipigon westerly to Raith could not be justified in light of high costs and minimal benefits which would accrue. However, a shorter bypass closer to Thunder Bay is warranted and this is reflected in the recommended improvements to the system.

Evaluation of a link between Highway 800 and Savant Lake indicated substantial benefits to the forest products industry. While this does not warrant provincial highway status, the corridor is a suitable candidate for future development through joint public and private efforts.



Hwy. 17, Nipigon Bay  
Pre-Cambrian Shield Plaque Site

None of the remaining four corridors which would have provided a north - south link between Highways 11 and 17 could be justified either on the basis of travel demand or benefits to the resource industries. While these links are not recommended at this time, their need will be periodically reviewed as part of the ongoing monitoring and planning process

## RECOMMENDED HIGHWAY SYSTEM

The recommended King's Highway System as shown in Exhibit 12, has been developed from the findings of the study to form the framework for future provincial highway transportation service to the area. The recommended system is also expected to constitute the basis for co-ordinated decision making, affecting other sectors of the economy. Flexibility of this transportation plan will be maintained, so that changes in the system can be initiated when a specific need has been identified

While no new provincial highway links for the region are identified at this time, the study does recommend specific improvements to existing highways with regard to classification, capacity and control of access.

### Classification Changes

A number of classification changes are recommended in order to establish an appropriate hierarchy of highways in the region



Mining Access Road

- 1) Highway 102 corridor, arterial type service is recommended to accommodate east-west traffic, wanting to bypass the City of Thunder Bay. In this regard, Highway 102 could be upgraded to carry this flow of traffic. However, since four lanes will ultimately be required in the corridor between the Thunder Bay Expressway and Shabaqua Corners, a facility on a new alignment should be investigated in detail as an alternative. This will be the subject of a future route planning study
- 2) Highway 61; arterial highway standards are recommended between the Thunder Bay Expressway and the Canada - U.S. Border.
- 3) Highway 11 and 17; a change to collector highway status is recommended for the section between Thunder Bay and Sistonens Corners.
- 4) Highway 599; collector highway status is recommended for this secondary highway for it's entire length from Ignace to Central Patricia.

#### Recommended Capacity Improvements

A number of highway sections carrying significant traffic volumes will require improvements in the future. These improvements may range from minor changes in shoulder width to assured passing opportunities or to new alignment altogether.

1. Highway 11 between the eastern study boundary and Nipigon will require surface improvements over several sections.



2. Highway 11 from Nipigon to Shabaqua Corners will ultimately require 4 lanes within the corridor.
3. Highway 11 from Shabaqua Corners to the study's western boundary will ultimately require improved sight distance.
4. Highway 17 between the eastern boundary to Nipigon will require improved sight distance and increased passing opportunities.
5. Highway 17 between Nipigon and Shabaqua Corners will require 4 lanes as noted for Highway 11 above.
6. Highway 17 from Shabaqua Corners to the western study boundary will require increased passing opportunities.
7. Highway 61 from Thunder Bay to the U.S. border will ultimately require upgrading to arterial standards.

#### Control-of-Access

To ensure safe driving conditions on highways carrying high speed traffic it is desirable they should be relatively free from frequent entrances and exits. The three main types of highways - arterial, collector and local should have appropriate control-of-access regulations to maintain their respective functions, yet these controls must be flexible enough to allow reasonable access to abutting property.

#### Implementation of Recommendations

The recommendations of this report are intended to form the fundamental provincial highway system to which the future development of the region can relate. It should, however, be understood that the timing of the implementations of these recommendations is dependent on a number of factors.

- 1) Acceptance by the public and the private sectors of proposed changes.
- 2) Actual rate of growth in transportation needs in relation to forecasts.
- 3) Significant shifts in economic developments within the region.
- 4) The availability of funds and relative provincial priorities.

Where any future improvements require major new construction, implementation will be preceded by an appropriate route planning study which will determine the location of the highway, the specific improvements required, and the environmental, social and economic implications of the project.



Pulp Mill





Mining Camp  
Mining Access Road, N.W. of Central Patricia

## FUTURE PLANNING

Transportation planning is a continuous process requiring constant monitoring and review.

This report delineates the future provincial highway system for the Thunder Bay District, based on existing and anticipated social and economic development of the area as it is perceived today. As unforeseen changes in the region's development occur, appropriate adjustments to the system will be made.

Comments and reactions regarding the proposals outlined in this report are welcomed and should be directed to:

Regional Transportation Planning Office  
Systems Planning Branch  
Ministry of Transportation and Communications  
1201 Wilson Avenue,  
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M3M 1J8













